

What is eGPU? What is eGPU used for? The most popular types of external VGA

eGPU is a type of component that helps improve laptop performance, but do you know exactly what an eGPU is, what function it has? Click now to find out!

When you read information on forums, people often recommend using eGPU for laptops to improve the graphics processing performance of the machine. So what exactly is an eGPU, what functions it has and what are the popular products currently on the market.

1. What is an eGPU?

- Concept, function

eGPU is an acronym for External Graphics Processing Unit, which can be translated as discrete graphics processor. eGPU belongs to a small branch of GPU, which includes more iGPU (integrated GPU - integrated GPU) and dGPU (dedicated GPU - discrete GPU).

Typically, eGPUs will often be attached to laptops (which have a small internal space), in order to improve the graphics processing capabilities of the device, while not heating the machine and draining the battery.



- Structure and working principle

The structure of an eGPU includes one or more VGA graphics cards, boards, cables, power cords, heatsinks, and some other accessories.

The laptop, after plugging in the eGPU, installing the driver, and restarting, will automatically switch the default graphics processing tasks on the machine to the graphics card included in the eGPU, thereby helping to boost processing performance. of the machine up many times without causing the machine to heat up.



2. Some ports to connect eGPU to laptop

Here are some popular eGPU connection ports with laptops today.

- mPCIe

Although this is the method most people choose today, it is also the most time-consuming way because users have to remove the laptop case, remove the wifi card in the laptop, and then plug the eGPU connection cable through it. .

In addition, some laptop models such as HP EliteBook, Lenovo Thinkpad or Dell Latitude are on the Whitelist (meaning the WiFi port only accepts genuine cards).

- Express Card 34, 54

If you have a workstation or a business computer (usually equipped with EC34 or EC35 ports), you can use this protocol to connect to an external eGPU directly without having to disassemble the machine. It can be said that this is a quite convenient way to connect.



- M.2 (NGFF)

Usually, this connection port appears on 4th generation Intel Core I chip devices and above, and similar to the mPCIe port, you also need to remove the case to be able to attach the eGPU. However, one advantage of M.2 when compared to mPCIe gateway is that the bandwidth of this connection protocol is much larger.

- Thunderbolt 2, 3

Currently, with the popularity of thin and light laptop product lines such as HP , LG or MacBook laptops , Thunderbolt ports are becoming more and more popular, especially Thunderbolt 3 (also known as USB Type-C port). C).

It can be said that this is the most modern connection protocol today with the largest bandwidth, the connection is also simple, but there is one problem that is the price of eGPU products and laptops that are supporting this standard. still quite high.



3. Pros and cons of eGPU

- Advantages

Here are some advantages of eGPU that we can mention right away.

- + The setup process is not too complicated, the **number of connection ports is diverse** .
- + Capable of attaching to many different smart devices.
- + **Easy to move** , more **flexible** than the PC case .



- Defect

Any product will have two sides, and the eGPU is no exception. Here are some disadvantages of eGPU.

- + Potential **risk of damage** when moving (due to force impact).
- + Some eGPU devices require the user **to remove the case** .
- + Not all laptop devices support eGPU, and the **price is quite high** .
- + Some laptop models have screens that do not meet the resolution, scanning frequency, . so **need to use a separate screen** .



4. Steps to connect eGPU to laptop

If you do not have too much knowledge about electronic devices, and are not sure, you should ask the seller for advice!

- For eGPU devices that need to remove the case

Step 1 : Uninstall **the old graphics driver** present on your laptop.

Step 2 : **Turn off** the computer and **unplug the power source** > Use a screwdriver to **remove** the back laptop **cover** .

Step 3 : At a compatible drive to install the Express graphics card, you **put the card into the PCIe slot** directly and note that only a slight impact is applied. The operation is complete when you hear a match.

Step 4 : Reassemble **the laptop case** > Turn on the machine and **run the new graphics driver** .

- For eGPU devices without removing the case

You just need to use the connection cords provided in the product when you buy it, then plug it directly into the machine. At this time, the GPU on the laptop will be turned off to make room for the eGPU you just attached.



5. According to what criteria should eGPU be selected?

- Demand

You need to clearly determine the tasks you are performing are focused on graphics processing, 3D drawing or gaming, then choose an eGPU with a reasonable graphics card integration. Because there are some applications that are only well optimized for a certain group of graphics cards.

- Connector

This is also another factor that you need to consider before choosing your eGPU. As mentioned above, the number of ports that the eGPU supports is very diverse, so you need to learn carefully about your laptop device

in advance, thereby making the right eGPU decision for yourself.



- Price

Based on the two criteria of need and support ports mentioned above, you can define yourself a list of eGPU devices that you want to buy, thereby choosing the right product.

- Brand, where to buy

Choosing a brand, as well as a reputable place to buy, is a factor that you should not ignore. The cost of eGPU products is not cheap, and choosing poor quality products will waste your money.

If you don't know too much about product setup, you can ask the store staff for advice!

Note : After installing the eGPU, you need to install the driver for the monitor, and you should use a separate monitor to achieve the best and most stable performance.

6. Some popular eGPUs

- EXP GDC Beast

Because of its reasonable price, EXP GDC Beast (made in China) is an eGPU product used by many people in our country. mPCIe, EC 34, EC 35 and NGFF are currently supported ports by this device.



- PE4C

This product is usually connected to a computer via mPCIe, EC and NGFF protocols, and when compared to the product mentioned above, they are completely similar in terms of features. PE4C products are sourced from Taiwan.

- Akitio Node

The Akitio Node eGPU product is a high-end product that uses a Thunderbolt port, so the transmission bandwidth will be faster. If you don't mind spending, learn more about this product!



- Gigabyte AORUS

This is a large manufacturer in the production of laptops, graphics cards or motherboards, so the fact that this product is good is undisputed. In particular, this product is also equipped with an extremely powerful Nvidia Geforce GTX 1070 graphics card.

- Alienware Graphics Amplifier

Coming to the final product of laptop manufacturer Dell . True to the name of the product, this eGPU only supports Dell 's Alienware gaming machines , and they use PCIe ports.



Just now is information about eGPU that you may not know. Hope the article is useful to you, thank you for watching, see you in other articles!

You finished reading the article "**What is eGPU? What is eGPU used for? The most popular types of external VGA**" edited by the [TipsMake](#) team. We hope this article has provided you with many useful tech tips and tricks. You can search for similar articles on tips and guides. Thank you for reading and for following us regularly.